SAP Thought Leadership Paper
Engineering, Construction, and Operations

Beyond Enterprise Resource Planning

Construction in the iPad Age

The Best-Run Businesses Run SAP™

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About the Author

Johnny Clemmons is the industry principal for engineering, construction, and operations at SAP, where he works with customers to find innovative ways to solve business problems. During more than 15 years in the engineering, construction, and operations industry, Mr. Clemmons developed an in-depth knowledge of industry best practices, systems, and means and methods. Prior to joining SAP, he led enterprise resource planning implementations at two construction companies, where he demonstrated a unique ability to translate industry requirements into software solutions. He is a LEED Accredited Professional, has held contractors licenses in multiple states, and previously served on the standards of practice committee for the Construction Management Association of America.

Like all businesses, construction companies have entered a new age of converging technologies in enterprise mobility, business analytics, and cloud-based applications. Examine the evolution of this convergence, and discover how these technologies can help your construction organization run your comprehensive business processes better, smarter, and faster.

Bringing Constant Connectivity to the Construction Business

With the introduction of the iPad and a host of other tablets and highly capable smartphones, the world has entered a new age defined by enterprise mobility and constant connectivity. End users expect instant access to exactly the information they need at the time they need it. According to a recent analyst study, healthy growth in the number of mobile workers is expected: "Our forecast shows that the worldwide mobile worker population will increase from just over 1 billion in 2010 to more than 1.3 billion by 2015."[1] As a result of this broad adoption, people increasingly expect a simple, intuitive mobile experience in their business life because they have it in their personal life. They look up nearby restaurants and get driving directions on their smartphones; and then they preorder coffee at Starbucks, walk in, pick it up, and pay from their phone.

To succeed in this mobile world, companies – including construction companies – must move beyond enterprise resource planning (ERP) and deliver that experience to their workforce. There is a convergence of technologies taking place that is allowing construction industry leaders to bring this type of user experience to their employees. And this user experience is coming both to the office and, more importantly, to even the most remote job sites. These converging technologies are enterprise mobility, business analytics, and cloud-based applications.

ENTERPRISE MOBILITY

Enterprise mobility brings new capabilities to the construction industry. Mobile technology isn't new in this industry; many companies have been using first-generation mobile apps to manage quality control and other discrete processes for a number of years. However, in most cases, these are applications running on devices adapted from PCs, and they are typically isolated from corporate systems of record, creating data silos that may limit enterprise-wide visibility of the data.

Industry leaders today are reaping the benefits of second-generation applications that provide true enterprise mobility, enabled by a mobile enterprise application platform (MEAP) and mobile device management (MDM). Using MEAP, your company can extend the high-quality user experience of the first-generation applications to multiple device types, such as iPad, iPhone, BlackBerry, Android phone, and Windows tablets. At the same time, MEAP allows connection to your company's enterprise systems, for access to such items as material receipts, change notices, purchase orders, or personnel records. All the while, MDM helps ensure that corporate data remains secure and applications remain synchronized across workers' devices.

Isolated first-generation mobile systems allowed project engineers to create documents such as punch lists directly on the device and then e-mail or route them to the appropriate party. Second-generation enterprise mobility means that mobile technology can do more than automatically route the information to the subcontractor for correction. It can also flag the subcontractor's account for payment hold if punch list items are not corrected within 10 days. In addition, all this information is now immediately available to all stakeholders within your organization in your system of record.

BUSINESS ANALYTICS

Construction companies are also benefiting from the latest developments in business analytics, which improve timeliness and quality of decisions. The introduction of advanced systems, such as building information modeling (BIM), has allowed project teams to identify and avoid conflicts earlier in the process. But BIM and other data-intensive processes like mobile data capture are exponentially increasing the amount of information that even small to midsize construction companies are required to manage. Project teams are getting buried under mountains of data, making them slow to react and often leaving them to make decisions without the critical piece of information they need. Business analytics systems are now allowing industry leaders to identify and extract the important information from the mountains of data to gain insight and make better decisions.

Business analytics applications sort, categorize, and analyze the data based on the criteria you have defined. Then you can bubble the important information to the surface using key performance indicators (KPIs), which can quickly draw your attention to areas that need additional investigation. Now your teams spend their time analyzing the important information, not sifting through reams of useless data. This allows your project executives, project managers, and superintendents to be more focused and more decisive, which reduces delays and keeps projects on track.

CLOUD-BASED APPLICATIONS

Finally, cloud-based applications enable you to collaboratively innovate in ways not possible even a few years ago. In the past, project collaboration tools have allowed project teams to work together on a common platform for highly collaborative parts of a project such as requests for information and submittals. While this seems advantageous at the project level, many of the advantages are neutralized at the enterprise level because each project may use a different collaboration site. The result is wasted effort in the form of duplicate entry into internal systems of record and retraining of personnel on differing business processes driven by the various systems. A successful cloud strategy allows you to benefit from the orchestration of cloud and on-premise solutions, which eliminates the waste and allows the true power of cloud solutions to be realized.

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Orchestrating Technology Convergence

At SAP, our innovative approach to these three technologies and deep industry understanding can enable your company to take full advantage of this convergence and to run your comprehensive business processes better, smarter, and faster. Sybase® Unwired Platform is an integrated MEAP and MDM platform that lets you fully enable enterprise mobility. You can put mobile devices into your workers' hands down to the foreman level to collect data where work is truly occurring.

In addition, for your analytics, the SAP BusinessObjects™ Business Intelligence suite lets you use dashboards, produce predefined reports, and perform ad hoc data analysis. A heavy highway contractor, for example, could replace its two-inch-thick project cost reports with an analytics dashboard to save project and business managers hours each week. Moreover, through a co-innovation project with our customers, SAP recently developed a construction analytics application that monitors and reports on more than 30 KPIs covering both project performance and overall business performance. This solution, the SAP Performance Analytics for Engineering, Construction, and Operations analytic application, is allowing rapid deployment of advanced analytics functionalities to our construction customers.

Our cloud-based solutions – including the SAP Jam social software platform and human capital management software from SuccessFactors, an SAP company – provide you with state-of-the-art functionalities. With SuccessFactors software, you can increase the return on investment on your most important asset: your people. You can identify needs faster, train better, and hire smarter than ever before. With more than 15 million users worldwide, SuccessFactors has one of the largest user bases of any cloud application.

To succeed in this mobile world, construction companies must move beyond enterprise resource planning and deliver a user experience supported by enterprise mobility, business analytics, and cloud-based applications.

A MANAGEABLE INVESTMENT

Although you can take advantage of a comprehensive suite of products from SAP, you may also need solutions that can function independently to solve specific business problems. That's why our mobile, analytics, and cloud solutions can each work independently. So if you need enterprise mobility today, we can offer a rapid-deployment solution that can have you up and running on key mobile apps in a matter of weeks. These mobile apps do not require the SAP ERP application and can be connected to your existing accounting or project management systems. The same is true of our analytics solutions. SAP Performance Analytics for Engineering, Construction, and Operations can connect to your existing data sources and provide you with new insight to critical project and enterprise performance information through more than 30 KPIs. The results are presented in seven analytics dashboards tailored to the needs of the industry.

LEARN MORE

SAP has moved beyond enterprise resource planning (ERP) in the following ways:

- 40% of our annual revenue comes from products other than ERP.
- 50% of SAP customers have revenues less than $500 million.
- SAP® software systems process more than 97% of the world's text messages.
- SAP is one of the leading cloud applications providers.
- The SAP HANA® platform can often improve the performance of data-intense queries by 1,000 times, making reports that once took hours or days now run in seconds.
- The SAP Mobile Platform allows deployment of applications to multiple device types.

For more information about how SAP software that supports enterprise mobility, analytics, and the cloud can help your construction company, call your SAP representative or visit us online at www54.sap.com/industries/engineering-construction-operations.html.

FOOTNOTES

1. Stacy Crook et al., "Worldwide Mobile Worker Population 2011–2015 Forecast," IDC, December 2011.

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